

Application No. : 09/015,811
Amdt. Dated : September 10, 2003
Reply To Office Action Of : June 10, 2003

Amendments To The Claims

The listing of claims will replace all prior versions and listings of claims in the application. The listing of claims present each claim with its respective status shown in parentheses.

Claims 1 - 77(**Canceled**).

Claim 78 (**New**) A method of protecting conductive elements of an integrated circuit, the method comprising:

B forming an insulating barrier liner covering at least one gate formed on a lower circuit element;

forming a silicon nitride barrier liner which will surround a conductive connector; and

forming the conductive connector which electrically connects an upper circuit element to the lower circuit element, thereby protecting the conductive connector from corrosive effects associated with fabrication of the upper circuit element, wherein the insulating barrier liner contacts the silicon nitride barrier liner.

Claim 79 (**New**) The method of Claim 78, wherein portions of the gate contact the silicon nitride barrier liner.

Claim 80 (**New**) The method of Claim 78, wherein the insulating barrier liner comprises silicon nitride.

Claim 81 (**New**) The method of Claim 78, further comprising forming a conductive barrier liner which surrounds the conductive connector, wherein sidewalls of the conductive barrier liner are between the silicon nitride barrier liner and the conductive connector and a cap portion of the conductive barrier liner is above the conductive connector and forms part of the electrical connection between the upper circuit element and the lower circuit element.

Claim 82 (**New**) The method of Claim 78, wherein the upper circuit element comprises a capacitor including a dielectric material having a dielectric constant greater than about 10.

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Claim 83 (New) The method of Claim 78, wherein the upper circuit element comprises a memory cell capacitor and the lower circuit element comprises a substrate including an active area electrically connected to the conductive electrical connector.

Claim 84 (New) A method of electrically connecting a capacitor having a high dielectric constant dielectric to a transistor active area, the method comprising:

b forming a first barrier to corrosion covering sidewalls of a contact hole, wherein the first barrier comprises insulating material;

forming a second barrier to corrosion covering the first barrier and other surfaces of the contact hole, wherein the second barrier comprises a conductive material; and

forming a conductive contact plug which electrically connects the capacitor including a high dielectric constant dielectric to the transistor active area of a lower circuit element, wherein the second barrier is around the conductive contact plug and the first barrier is around the second barrier, thereby forming an electrical contact including at least two protective barriers around the conductive contact plug to avoid corrosive aspects associated with the fabrication of the capacitor.

Claim 85 (New) The method of Claim 84, further comprising forming a third barrier to corrosion covering a side of the conductive contact plug opposite the transistor active area, wherein the third barrier comprises a conductive material and electrically connects the capacitor with the contact conductive contact plug.

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Claim 86 (New) The method of Claim 84, further comprising forming a third barrier to covering a side of the conductive contact plug nearest the transistor active area, wherein the third barrier comprises a conductive material and electrically connects the transistor active area with the contact conductive contact plug.

Claim 87 (New) The method of Claim 84, further comprising:

forming a third barrier to corrosion covering a side of the conductive contact plug opposite the transistor active area, wherein the third barrier comprises a conductive material and electrically connects the capacitor with the contact conductive contact plug; and

forming a fourth barrier to covering a side of the conductive contact plug nearest the transistor active area, wherein the fourth barrier comprises a conductive material and electrically connects the transistor active area with the contact conductive contact plug.

Claim 88 (New) The method of Claim 84, further comprising forming an insulating layer including a sidewall portion and a cap portion surrounding at least one of a bit line or a word line on the lower circuit element.

Claim 89 (New) The method of Claim 88, wherein portions of the at least one of a bit line or a word line contact the first barrier.